



INTERACT Active Tracker Perspective on ablations in the Angio room

Automatic fusion and seamless alignment of ultrasound to CT, MR, PET-CT and CBCT volumes in ablation procedures in the interventional suite

Meet the experts



Professor François Cornelis, MD, Ph.D., FCIRSE is Head of the Interventional Oncology Department at Tenon Hospital, Sorbonne University, Paris, France. He is specialized in the treatment of cancer, in particular in the liver and performs all types of image guided endovascular & percutaneous ablation procedures.

Located in Paris, France, Tenon Hospital is an academic medical center that integrates clinical and hospital care with research and education. The Interventional Oncology department of Pr. François Cornelis is part of a large oncology pole and has 600 hospital beds, 13 operating rooms and 2 Interventional suites. This Interventional Oncology department treats 2000 new patients per year and performs 500 image guided endovascular & 200 percutaneous ablation procedures per year.

Optimal image guidance plays a critical role to achieve correct ablation and success of treatment. If CT fluoroscopy is among the most popular methods for performing ablations in the liver, ultrasound-guided puncture is another well-established method. Introducing Ultrasound to the equation allows to overcome the main limitations (such as limited access to the lesion¹, limited space in the CT bore to access the patient, dose management², accessibility to CT room for IR team³) associated with CT-guidance in percutaneous procedures. But because some lesions remain poorly visible under Ultrasound, physicians may have to fuse information from Ultrasound with other imaging guidance modalities, such as cone-beam computed tomography (CBCT), computed tomography (CT), magnetic resonance (MR) and positron emission tomography (PET)⁴. For fusion of Ultrasound and 3D volumes (CT/MR/PET) a variety of methods are available, including manual, image-based, and electromagnetic tracking-based fusion.

Today, we ask Dr. Cornelis to share his point of view regarding INTERACT Active Tracker⁵, an electromagnetic tracker-based solution allowing live Ultrasound automatic fusion with CBCT, as well as pre-operative CT, MR and PET volumes for effective needle procedures in the Interventional Suite.

How many ablation procedures do you perform in your department?

Prof. Cornelis: “We perform about four to six ablations a week, 200 a year. Most of our ablations are in the bone but we also ablate in the liver, kidneys and lungs.”

CT guidance is very popular to perform ablations in the liver. What are the main challenges encountered with CT-guided ablation?

Prof. Cornelis: “The main limit I have right now is to access the CT room to perform IR procedures under general anesthesia.”

When you do perform your ablations under CT guidance, do you have any specific concerns as an operator? And what about the level of radiation you get?

Prof. Cornelis: “I never use CT fluoro live, I guide the probes knowing where the lesion is, then I get three slices to check the probes position using the Smart Step protocol.

So, the dose remains minimal both for me and the patient.

But everything depends on how you use the system.

In our hospital we mostly work in the angiography suite, either under CBCT-fluoroscopy guidance, or under Ultrasound guidance, but mostly both fused.

The advantage of the angiography room is that the patient is more comfortable in this dedicated environment, the staff too, including the anesthesiologists, and you can reach the exact obliquity you need using trajectory guidance software, while monitoring the needle live.”

What about Ultrasound guided ablations?

Prof. Cornelis: “When performing an ablation, we must have a fairly thorough knowledge of where the lesion is located and how we can reach it properly and accurately. Some lesions are not visible under Ultrasound.

And even if we see the nodule under Ultrasound while positioning the needle, we won't anymore when we start to ablate.

During cryoablation for example, we can see the ice, but we do not see the nodule.”

You told us that you are using Ultrasound in the interventional suite for ablation procedures.

What are the benefits and challenges of using ultrasound fusion in combination with angiography?

Prof. Cornelis: “I think image fusion is useful to better visualize the lesion and position the needle, but it also allows us to address the issue of immediate evaluation of the ablation area. If you do an adequate image fusion initially, even if you lose the tumor visibility on live ultrasound during the ablation, you can still assess tumor coverage using fusion with previous imaging or intraprocedural CBCT. But if we were using another ultrasound system, we would have to constantly switch between live guidance under ultrasound and verification under CBCT.

What interests me in the GE Healthcare’s solution is that the ultrasound and the angiography are integrated, so the fusion between CBCT and live US Ultrasound is automatic, which saves time and allows me to reach a higher fusion accuracy than what’s achievable manually. Before INTERACT Active Tracker, it was not easy. We would sometimes have to redo the CBCT to fit both the tracker device and the lesion in the reconstructed field. Sometimes it would take us 20 min to be in position to treat.”

“The great interest of INTERACT Active Tracker is that it provides seamless automatic fusion between CBCT & live Ultrasound which saves time and allows me to reach a higher fusion accuracy than what’s achievable manually.”

Pr. François Cornelis

Do you think INTERACT Active Tracker is providing you the right solution?

Prof. Cornelis: “I believe so. If we get rid of the challenge of centering the tracker device in the same CBCT volume than the lesion, which was one of the major challenges with the previous workflow, it is a major improvement.

I think this solution will fill the gap, making the setup and use of US-CBCT/CT/MR/PET fusion seamless and accessible to anyone.

In terms of training, I think the operator must be fully involved in the process to become fully autonomous.

We must not only train the technologists. The one holding the needle must be fully aware and trained on the solution. If the physician is involved, then the team will follow.”

Imagination at work.

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5. INTERACT Active Tracker may not be available in all markets. INTERACT Active Tracker is an optional feature of 3DXR (part of GE Interventional X-ray systems Innova IGS 5, Innova IGS 6 and Discovery IGS 7 or Discovery IGS 7OR). This feature supports only one 'Active Tracker' type: OmniTRAX™ Active Patient Tracker (sold separately by CIVCO). 3DXR may not be available in all markets. Refer to your sales representative.

The Statements described here are Dr. François Cornelis' professional opinions.



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